

**PATENT APPLICATION**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q86875

Go NAGAYA

Appln. No.: 10/530,180

Group Art Unit: 3618

Confirmation No.: 5597

Examiner: Frank Bennett VANAMAN

Filed: April 4, 2005

For: IN-WHEEL MOTOR SYSTEM FOR A STEERING WHEEL

**REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.41, Appellant respectfully submits this Reply Brief in response to the Examiner's Answer dated June 23, 2010. Entry of this Reply Brief is respectfully requested.

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REPLY BRIEF UNDER 37 C.F.R. § 41.41  
U.S. Appln. No.:10/530,180

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**STATUS OF CLAIMS**

Claims 1-6 are all the claims pending in the present application. Claims 1-6 have been finally rejected, and are the subject of this appeal.

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Claim 1 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Baker et al. (U.S. Patent No. 3,472,331) in view of Iizuka et al. (U.S. Patent No. 5,224,563).
2. Claims 2-6 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Baker in view of Iizuka, and further in view of Nelson (U.S. Patent No. 3,468,389).
3. Claim 1 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Baker in view of Iizuka, and further in view of Tenney (U.S. Patent No. 1,780,370).
4. Claims 2-6 also stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Baker in view of Iizuka, in view of Tenney, and further in view of Nelson.

**ARGUMENT**

- A. **Neither Baker nor Iizuka, alone or in combination, renders claim 1 unpatentable under 35 U.S.C. § 103(a). For example, the applied references do not disclose or suggest at least, “a first knuckle which is connected to an upper suspension arm, a lower suspension arm and a non-rotary side of the direct drive motor, and is locked in a steering direction,” and “a second knuckle which is connected to a steering rod and to the first knuckle in such a manner that the second knuckle turns on a king pin axis in the steering direction and is fitted with a brake unit and the wheel,” as recited in claim 1.**

In the Appeal Brief dated April 27, 2010, Appellant submitted arguments that are believed to distinguish the claimed invention over the applied references. The Examiner responds to the arguments submitted in the Appeal Brief, in the Examiner’s Answer dated June 23, 2010.

First, as a general matter, Appellant notes that the Examiner, in the Response to Argument section of the Examiner’s Answer, cites new references to support the Examiner’s assertions being made in the Examiner’s Answer. Appellant respectfully requests the Board to disregard the Examiner’s use of these newly cited references as they have not been officially applied. If the Examiner wishes to rely on these references to support his position, Appellant respectfully requests that the Examiner withdraw the case from appeal and issue a new Office Action including rejections that apply the new references as cited in the Examiner’s Answer.

With respect to independent claim 1, Appellant previously submitted that the applied references, alone or in combination, do not disclose or suggest at least: 1) “a first knuckle which is connected to an upper suspension arm, a lower suspension art and non-rotary side of the direct drive motor, and is locked in a steering direction,” and 2) “a second knuckle which is connected

to a steering rod and to the first knuckle in such a manner that it can turn on a king pin axis in the steering direction and is fitted with a brake unit and the wheel,” (emphasis added) as recited in claim 1.

With respect to the first limitation quoted above, the Examiner alleges that Baker discloses the first knuckle (upper king pin 122<sup>1</sup>) and second knuckle (19, 21, 82 and 85). Also, the Examiner acknowledges that Baker fails to teach a drive source as comprising a motor, however the Examiner applied Iizuka to allegedly satisfy this particular deficiency. *See page 8 of Examiner’s Answer.*

In response to this allegation, Appellant previously submitted that even if, *arguendo*, Iizuka discloses a motor for a wheel, there is no teaching or suggestion in either of the applied references of how such a motor would be incorporated into the wheel shown in the illustration of Baker. As shown in Figs. 5 and 6 of Iizuka, the motor 21 is not the wheel (23). That is, Iizuka does not disclose the claimed in-wheel motor. The Examiner appears to have picked and chosen different components of two different references and alleged that they are combinable without further support or explanation. The illustration of Baker shows wheel related components within the wheel that do not leave room for the inclusion of a motor, and nowhere do either of the references disclose how a motor from Iizuka would be incorporated into the wheel related components of Baker. Therefore, absent any teaching or suggestion with respect to such a

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<sup>1</sup> As previously argued, Appellant submits that one of ordinary skill in the art would clearly recognize that a kingpin does not correspond to a knuckle.

combination, Appellant submits that the above-quoted features of claim 1 are clearly not satisfied by the applied references, alone or in combination.

In response, in the Examiner's Answer, the Examiner alleges:

First: The only apparent recited relationship of the motor as being connected with respect to the wheel is found in the claim preambles: "an in-wheel motor system [for mounting a direct drive motor to a wheel]". Such a limitation is given little patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. Further, the functional modifier "for mounting a ... motor to a wheel" is not understood to be equivalent to a recitation of mounting the motor --in-- a wheel. Additional relationships involving the motor are recited in the bodies of claim 2 (lines 1-3), claim 3 (lines 2-3), claim 4 (lines 2-3), claim 5 (lines 2-3) and claim 6 (lines 2-6), but none of these recited relationships refer to the motor as being in the wheel.

In response, Appellant submits that claim 1, for example, is directed to an in-wheel motor system for mounting a direct drive motor to a wheel. The body of the claim also recites that a first knuckle is connected to an upper suspension arm, a lower suspension arm and a non-rotary side of the direct drive motor. Clearly, one of ordinary skill in the art would understand that the in-wheel motor system that is being referred to, refers to the claimed direct drive motor in the claimed wheel. The Federal Circuit has held that "[a] claim preamble has the import that the claim as a whole suggests for it" and "if the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the

balance of the claim.” See *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995) and *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).

Here, the body of the claim refers to the direct drive motor, which is also mentioned in the preamble as part of the claimed in-wheel motor system. That is, in order for there to be an in-wheel motor system, a motor must exist. The existing motor of the in-wheel motor system, the claimed direct drive motor, is recited in the preamble and body of claim 1. Therefore, in the context of the entire claim, the preamble recites limitations of the claim that should be accorded patentable weight.

Further, the Examiner further alleges:

Second, as again regards the preamble limitations, even if accorded patentable weight, the preambles recite an “in-wheel motor system” which while clearly indicting that at least some of the system is an “in-wheel” system does not recite that the entire system is contained within the wheel, nor does such a recitation positively locate the motor itself within the wheel.

In response, Appellant submits that “in-wheel” system clearly indicates to one of ordinary skill in the art that the motor system (including the direct drive motor) is IN the wheel. Furthermore, the applied references, alone or in combination, do not disclose or suggest the claimed invention because neither discloses or suggest an “in-wheel” motor system in which a motor is partially or wholly located in a wheel, at least based on the reasons set forth in the Appeal Brief and/or herein this Reply Brief.

Yet further, the Examiner alleges:

Third, Appellant's own constructive definition of an "in-wheel motor system" does not require a motor to be located within a wheel. Appellant has explicitly identified, in section V of the Brief, the "Summary of Claimed Subject Matter", the illustration of figure 1 and the specification at "page 6, lines 4-18" as being representative of the claimed subject matter. Figure 1 clearly illustrates the motor (element 3) which is described as being part of the asserted in-wheel motor system, as located exteriorly of the wheel (elements 1, 2, 2a, 2b, 6). The portion of the specification referred to by Appellant explicitly refers to this figure as an "in-wheel motor system" (see, for example, page 6, line 7). As such, the Examiner understands that Appellant's constructive definition of "in-wheel motor system" reasonably includes an arrangement where the motor is not within the wheel, although the "system" may partially be so located.

In response, Appellant submits that Figure 1 was only referred to in the Summary of the Claimed Subject Matter section of the Appeal Brief, to provide the reader with an idea of what element could correspond to a claimed second knuckle. In the Summary of the Claimed Subject Matter section of the Appeal Brief, Appellant referred to element 7 of Figure 1 only as an example of a second knuckle. Appellant could have also referred to, for example, element 7z of Figure 3 to show a second knuckle. Fig. 3 clearly shows an in-wheel motor (i.e., a motor within a wheel). Appellant only referred to an exemplary second knuckle from Figure 1 for the Examiner and BPAI's convenience.

Further, in the Appeal Brief, Appellant submitted that the Examiner has not identified a steel rod in either of the applied references and explained how any such steel rod would be connected to a second knuckle, as recited in claim 1.

In response, according to the Examiner's comments on page 9, first full paragraph of the Examiner's Answer, the Examiner essentially concludes that since Baker is explicitly directed to



a steerable wheel, it is reasonable to suggest that one of ordinary skill in the art would be well versed in providing a mechanism for actually steering the wheel.

Appellant does not squabble with the point that a steering rod may be implementable in the teaching of Baker, however the mere possibility of implementation of a steering rod does not necessarily result in the features and arrangements as set forth in the claimed invention, as argued in detail in the Appeal Brief. Thus, Appellants maintain the previously submitted arguments on this particular point.

Therefore, at least based on the foregoing as well as the arguments set forth in the Appeal Brief, Appellant submits that one of ordinary skill in the art would not have arrived at the claimed invention by combining Baker and Iizuka. In other words, neither Baker nor Iizuka, alone or in combination, discloses or suggests at least, “a first knuckle which is connected to an upper suspension arm, a lower suspension arm, and a non-rotary side of the direct drive motor, and is locked in a steering direction,” and “a second knuckle which is connected to a steering rod and to the first knuckle in such a manner that the second knuckle turns on a king pin axis in the steering direction and is fitted with a brake unit and the wheel.”

Accordingly, withdrawal of the rejection of claim 1 under 35 U.S.C. § 103 is respectfully requested.

**B. Neither Baker, Iizuka, nor Nelson, alone or in combination, renders claims 2-6 unpatentable under 35 U.S.C. § 103(a).**

Appellant submits that dependent claims 2-6 are patentable at least by virtue of their indirect or direct dependencies from independent claim 1. Nelson does not make up for the deficiencies of Baker and Iizuka.

Further, with respect to dependent claim 5, Appellant maintains that the applied references, either alone or in combination, do not disclose or suggest at least, “wherein the output shaft of the motor and a wheel support hub mounted to the second knuckle are interconnected by constant velocity joints,” as recited in claim 5. *See pages 16-18 of Appeal Brief.*

Yet further, with respect to claim 6, Appellant maintains the applied references do not disclose or suggest at least, “wherein the rotary portion of the motor and the wheel are interconnected by a flexible coupling having at least two direct-moving guides connected to each other in such a manner that their moving directions cross each other in the axial direction of the motor and a constant velocity joint-like coupling which has the center of its movement on a king pin axis and turns in the steering direction,” as recited in claim 6. *See pages 16-18 of Appeal Brief.*

As indicated above, the Examiner relies on newly cited references in the Reply Brief to support his position. Appellants respectfully request the Board to disregard the Examiner’s use of these newly cited references as they have not been officially applied. If the Examiner wishes to rely on these references to support his position, Appellants respectfully request that the Examiner withdraw the case from appeal and issue a new Office Action including rejections that apply the references as cited in the Examiner’s Answer.

Therefore, at least based on the foregoing, Appellant maintains that claims 2-6 are patentably distinguishable over the applied references, alone or in combination.

**C. Neither Baker, Iizuka, nor Tenney, alone or in combination, renders claim 1 unpatentable under 35 U.S.C. § 103(a).**

With respect to independent claim 1, Appellant maintains that this claim is patentable over Baker, Iizuka and Tenney at least based on the reasons set forth in the Appeal Brief and, to the extent the arguments above apply, the reasons set forth above.

At least based on the foregoing and the previously submitted arguments, withdrawal of the rejection of claim 1 under 35 U.S.C. § 103 is respectfully requested.

**D. Neither Baker, Iizuka, Tenney nor Nelson, alone or in combination, renders claims 2-6 unpatentable under 35 U.S.C. § 103(a).**

Appellants submit dependent claims 2-6 are patentable at least by virtue of their indirect or direct dependencies from independent claim 1. Nelson does not make up for the deficiencies of the other applied references.

Further, with respect to claims 5 and 6, Appellants maintain the arguments previously submitted in the October 5, 2009, Appeal Brief.

As indicated above, the Examiner relies on newly cited references in the Reply Brief to support his position. Appellants respectfully request the Board to disregard the Examiner's use of these newly cited references as they have not been officially applied. If the Examiner wishes to rely on these references to support his position, Appellants respectfully request that the Examiner withdraw the case from appeal and issue a new Office Action including rejections that apply the references as cited in the Examiner's Answer.

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**CONCLUSION**

For the above reasons as well as the reasons set forth in Appeal Brief, Appellant respectfully requests that the Board reverse the Examiner's rejections of all claims on Appeal. An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

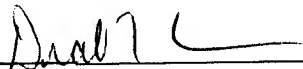
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